TENTH ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF

CLEMSON AGRICULTURAL COLLEGE.

1899.

COLUMBIA, S. C.
THE BRYAN PRINTING CO., STATE PRINTERS.
1900.

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Letter of Transmittal.

Clemson College, S. C., January 3d, 1900.

To the Honorable J. J. McMahan, Superintendent of Education of South Carolina.

Sir: I have the honor herewith to submit to you, as required by law, the Tenth Annual Report of the Board of Trustees of the Clemson Agricultural and Mechanical College.

R. W. SIMPSON,
President Board of Trustees.

Annual Report Board of Trustees.

In submitting this, the Tenth Annual Report of Clemson College, as required by law, it is exceedingly gratifying to the Board of Trustees to state that, notwithstanding the low price of cotton, and the consequent stringency in money matters, the College has experienced during the year a degree of success beyond our most sanguine anticipations.

President H. S. Hartzog has continued to display an aptitude and ability to manage the affairs of the College, and to his careful management the present prosperous conditions are largely due, and attention is asked to his able and comprehensive report, a copy of which accompanies this report.

We are pleased to report also that we have secured a corps of teachers, all of whom, collectively and individually, have labored patiently and intelligently to give the student body the very best results obtainable in our particular course of study. Harmony exists in all departments.

Owing to the extensive sanitary improvements made, there has been but very little sickness during the year. There have been no cases of a serious nature. In fact, it is a matter of great gratification to assure the patrons of the College of these healthful conditions, and, under the rules adopted, we feel assured that this satisfactory condition will continue to exist.

At the beginning of the scholastic year in September last, the number of applicants for admission largely exceeded the capacity of the College, and it was with much regret that something over 200 applicants had to be turned away for lack of room to accommodate them. 475 students matriculated, and these were distributed, as far as possible, among the several counties in proportion to their representation in the General Assembly. At this time the President has received written applications for admission into the College at the beginning of the term, September, 1900, sufficient to fill the full capacity of the College, not counting the 440 students now here.

Notwithstanding this increased demand upon the College, this Board is not prepared to recommend at this time any extensive enlargement of the College plant. Such an enlargement would be a very serious matter, as it would require the enlargement of every department of the College, which would necessarily entail a large expenditure of money. But it is imperative that there should be such an enlargement of the plant as to properly take care of and provide for those students that are here now.

In equipping and co-ordinating the several departments, this Board could not foresee every condition liable to accrue. The large increase of students this year was not distributed equally among the several classes, but was necessarily confined to the Freshman and Sophomore classes. Had this increase been distributed among all the classes, we could possibly have managed very well with the equipment; but when there is an overflow in say two classes, every department into which these two classes go for instruction has to be enlarged, otherwise it will be impossible to give them all proper instruction. Experience this year has demonstrated the fact that, in order to properly provide for and properly instruct the students now here, under the conditions above stated, there will have to be large additions both to the buildings and equipment.

We will here call your attention to some of these necessary enlargements. The Chemical Laboratory was primarily constructed for class instruction only, but for six or seven years a large part of the building has been occupied by the State analytical department, the work in which department has more than doubled in the last few years. Chemistry is largely taught in the Agricultural course and in the course of textile industry and to a less extent in the Mechanical course. Now, the increase in the College, as above specified, renders it necessary to either build a new and separate building for the fertilizer and State analytical department, or enlarge the present building, as the building at present is entirely too small. And here we will state further, that the expenses of the fertilizer department as published do not represent all the expenses, as the department has no rent and other such expense to provide for, and the Board requires the Professors of the College to give their work

to the department when they are not otherwise employed. By this arrangement, the money actually paid out for this work has been reduced nearly one-half of what it cost when located in Columbia.

The Textile Department, recently added to the College course, has met with gratifying approval and success. But the skilled instructors employed in this department, together with the usual current expenses, have added considerably to the total expenses of the College. The building for this department, when planned, provided for double the present building but it was deemed wise to construct one-half of the building at the beginning. Now, the present building is not large enough to permit the placing in it of the machinery given to it, nor is it large enough to accommodate the number of students desiring to take this course, hence this building will have to be enlarged.

In the Mechanical Department the divisions of wood-work, forge and foundry and machinery were equipped to accommodate sections of eighteen students at a time, as this number was as large as any instructor could properly teach. The increase of students in the two lower College classes is far beyond the capacity of these divisions, and the equipment of each one must necessarily be increased.

Our Agricultural Department needs many appliances and equipments to strengthen the practical side of the work. All agricultural courses are still in a formative state to some extent, as education along this line is new, and there are not many precedents to follow. We have now reached a point where we can see clearly the desirability and necessity of making many permanent improvements.

The personnel of the agricultural faculty is strong, but for the most efficient work, equipment and appliances are necessary. In the past we have tried in every way that seemed proper to make this course the best of the kind in the United States. We feel that it will now compare favorably with that in any other agricultural college, but to hold up this high standard we should provide modern appliances.

The wretched condition of the one mile of road from the College to Calhoun last winter made the expense of hauling coal and supplies very heavy indeed. To remedy this evil, the

Board determined to build a macadam road, both for convenience and instruction. This road is now nearly completed. In building it we were materially assisted by Mr. Secretary of Agriculture Wilson, and the experts under him.

The macadam road will largely reduce the expense of hauling, but if we had a railroad branch from the same place, so that the unloading of cars could be avoided, the cost of this hauling could be reduced to a mere trifle.

The Board would have graded and laid the crossties upon this road this year, the railroad having agreed to lay the iron and move the cars for us, but persons owning lands refused the right of way. We ask that the Act incorporating the College be amended, giving the Trustees the right to build railroads, macadam roads, tramways and highways within its incorporate limits, and to construct a railroad along the highway from the College to Calhoun Station, if deemed advisable, with the power to condemn rights of way therefor, when necessary.

During the summer vacation Farmers Institutes were held in many of the counties of the State—in fact, in all where they were requested. These Institutes are growing in usefulness and popularity, and it is the purpose of this Board to continue the development of these Institutes, the cost of which at present is considerable, and this cost will be increased as the Institutes are developed.

Owing to the fact that many of our instructors were unmarried men, we have been able to provide house room for them, but this condition has been changed, and, therefore, we feel it necessary to construct several more small cottages.

After the adjournment of the Legislature this Board holds one of its regular meetings. At this meeting, upon estimates of the President and the heads of the several departments, an itemized appropriation is made by the Board to cover the necessary expenses in each department for the current year, and no money is permitted to be expended except for the particular purpose for which it was appropriated, and any balance remaining reverts to the College treasury.

This Board alone expends the College funds, except a small amount given to the President to meet unforeseen emergencies.

The Finance Committee of the Board is required to meet

quarterly and to examine the books and vouchers of the Treasurer, and to ascertain and report if any money has been expended otherwise than as appropriated. This Committee has performed the duties assigned to it, and from their reports made from time to time, we submit that the finances of the College have been managed carefully, honestly, and in a manner entirely satisfactory to this Board.

At the last session of the Legislature, from the discussion had upon the inspection tax, this Board was led to infer that it was its duty to keep these appropriations, if possible, within specified limits. So in making appropriations for last year they were confined, as far as possible, to current expenses. But the large increase of students rendered it necessary to make several expenditures not anticipated, and which could not be foreseen. Notwithstanding, we have during the year kept the total expenditures practically within the limits specified in our last report as necessary to meet the current expenses. This has been done, however, to the injury and detriment of the best interests of the College.

The Treasurer reports a balance on hand of some ten thousand dollars. This balance could have been profitably expended in making enlargements to the equipment of the divisions mentioned above, but for the reason stated, and for the further reason that in the management of such an institution as Clemson College it is not good business to appropriate all of our income at the beginning of the year. We know not when an emergency may arise, and if we were without available means serious injury might befall the College.

To make the enlargements of buildings and equipments before mentioned, to keep pace with the rapid development of science, to preserve the College property, to properly take care of the students now here, and to maintain the high standard which Clemson now enjoys, it will require, to meet these improvements, together with the current expenses, and to maintain a sufficient balance on hand to meet emergencies, all the balance now on hand left over from last year, and all of the this year inspection tax, even if the amount should be as large as received last year. It is hardly probable, however, that the inspection tax will realize this year as large amount as received

last year. From the best information obtainable the receipts from this source will be perceptibly lower this year than last.

The report. of Mr. P. H. E. Sloan, Secretary and Treasurer, hereto appended, will show the amounts received and expended, and an itemized report of each expenditure has been filed with the Superintendent of Education as required by law.

We also call especial attention to the report of Col. M. B. Hardin, Chemist of, and Mr. J. P. Smith, Secretary of, the Fertilizer Department, copies of which reports are hereto appended.

Mr. Smith, in his report, suggests several minor amendments to the Fertilizer Act, which we approve of. The law passed at the last session of the Legislature governing the mode and manner of inspecting fertilizers, etc., has been carried into effect, and is an improvement upon the old law.

The funds for the support of Clemson College are derived from the Fertilizer Inspection Tax and the Federal Government.

Before using the inspection tax for the College, we have to pay the costs of analyzing and inspecting. This amounts to about $7,000 a year, and, as we have stated before, that amount is only one-half of what it amounted to when the work was done in Columbia, or what it would be here if charged with every item of expense.

The Federal fund must be used in the way prescribed by Congress, and if diverted to any other purpose, this whole fund will revert to the United States Treasury.

There are some unacquainted with the law who think that Clemson College gets the use of the fifteen thousand dollars from the Hatch fund. This can be used only for experimental work, and not a dollar of that fund can be touched by the College. Every year an auditor from Washington examines the vouchers, and the Federal Government insists on the letter and the spirit of the law being rigidly enforced.

In conclusion, we desire to call attention to one of the results growing out of the particular instruction given at Clemson. Within six weeks after the last class graduated, every member of the class obtained a good position at salaries averaging $600. Besides, all of the graduates, or nearly all of them, are profitably employed in positions heretofore inaccessible to the young

men of this State. Many of the graduates of the electrical division are now receiving larger salaries than we pay the professor of electricity.

All that we ask from the Legislature is that the condition heretofore existing be allowed to remain as it now is. If this is done, we will guarantee the continued development and prosperity of Clemson College.

R. W. SIMPSON,
President Board Trustees.

Annual Report Board of Visitors Clemson College, South Carolina, 1899.

CLEMSON COLLEGE, S. C., August 30, 1899.

Hon. R. W. Simpson, Chairman Board of Trustees Clemson College, S. C.

Dear Sir: In obedience to summons, the Board of Visitors met at the College on the 29th inst., and organized by electing the undersigned as Chairman and Secretary, respectively, and proceeded to discharge the duties assigned to them.

It is a matter of regret to the Board of Visitors that the College is not in session, and consequently we cannot see the Institution in operation at this time, and, therefore, we cannot speak of its excellence in that regard, as we have no doubt we could well do under other conditions.

We visited the various departments under the escort of their respective heads, and saw enough to satisfy us that South Carolina has an Agricultural, Mechanical and Textile College of which all our people can well be proud, and which ranks as high as any like institution in the country, and will grow in excellence and usefulness as time goes on.

We are impressed with the fact that the money of the State and nation appropriated to this College has been profitably invested, and that every official connected with it is actuated by the most patriotic impulses, and is striving to the fullest extent of their power to do their duty.

We are gratified to know that the people of the State appreciate the College at its true worth, and that the Institution will open at the beginning of its next session with a patronage up to its full capacity, and regret to know that all who wish to share its advantages cannot be accommodated.

We are gratified to know that during the past year the health of the College has been excellent, and that the epidemic of fever which visited the school a few years ago was only one of those

transient events which are liable to occur at any school, and was not due to any permanent cause. The sanitary conditions of the place are now as near perfect as can be made, and there is no reason to expect a return of that visitation; yet it is a well known fact that when so many people are collected together, in the ordinary course of nature, at times some of them will be sick. We can only hope to reduce this number to a minimum, and we think this has been done at Clemson.

The Board of Trustees and Faculty in the past year conceived the idea of building a macadam road from the College to Calhoun Station, on the Southern Railway; a considerable portion of the work has been completed, and is a splendid work.

We are informed by the able Superintendent of this work, Maj. J. E. Bradley, that with an additional outlay of about $1,000, a railroad can be constructed alongside of the wagon road, and that the Southern Railway Company will lay the rails, furnish the rolling stock, and operate the road from the station to the College, thus saving the heavy expense of hauling the large amount of coal and other bulky freight by wagons, making an annual saving of about $1,200. We recommend that this be done, by all means.

We regret to learn that it is feared by some that the landowners over whose property this road must be built will not grant the right of way, but, on the contrary, will oppose the construction of the railroad. We hope this is a mistake, but if in this we are mistaken, we think you may safely rely upon the Legislature granting you the power to condemn the right of way, as in other cases of railroad construction.

It seems to us that the experimental grounds are too far from the College, and, if practicable, should be established nearer. The students who take the Agricultural course should have every opportunity to learn practice as well as theory, as practice and theory go hand in hand to make a good farmer.

We congratulate ourselves upon the good fortune of being present at the Farmers' Institute, which is in session at this time, and enjoying the advantages of a school so rich in educational advantages. Unfortunately, the season is not propitious for a large attendance; the harvest time is opening, the weather is bad, and the times are hard. We hope by another year these

conditions will be altered, and that every county in the State will be represented at this most instructive and enjoyable event.

It is human nature to find fault, and men placed in our position always try, and generally succeed in pointing out some defects, and suggesting some improvements upon the works of those who have gone before them. We are forced to form an exception to this rule and indulge ourselves in the higher pleasure of awarding honor where honor is due, and say that, as far as we are able to discover from a careful investigation into all the departments of the College, it reflects credit upon all who are connected with it, and is a blessing to the people of South Carolina.

Respectfully submitted,

ROBERT ALDRICH,
Chairman.

THOMAS M. RAYSOR,
Secretary.

Annual Report of President Henry S. Hartzog.

CLEMSON COLLEGE, S. C., December 20, 1899.

To the Board of Trustees of Clemson College.

Gentlemen: I have the honor to present herewith my Annual Report for the year 1899.

ATTENDANCE.

It became apparent to us last summer that the College would be taxed to its utmost capacity at the opening of the session in September. In anticipation of an overflow of students, we filed and dated the applications as received. Before College opened there were 200 more applicants that we could provide rooms for.

In determining which students should be notified to report to the College, we followed the rules prescribed by the Board of Trustees:

1. Students must undergo a medical examination, and no student will be admitted who is not healthy and free from contagious diseases, including consumption.

2. Students will be apportioned among counties in proportion to representation in the House of Representatives, under the following rules and regulations:

(a). Boys prepared to enter College classes will have preference over those who can only enter preparatory classes.

(b). As between boys of equal preparation, the oldest will have the preference.

(c). Other things being equal, the first applicants will receive permission to enter.

(d). When a county has not sent its quota, the places thus left shall be apportioned among the other applicants.

(e). Applicants not entering within ten days after the opening of the session will have their rights in the place given to applicants next on the roll.

Since the opening of the session on September 14th, 1899, 475 young men have reported in person to the College for duty. Some were rejected on the medical examinations; some failed to enter the classes that they applied for; and some having reached the College after all the rooms were taken had to return home.

We have dormitory room for 419 students. There are now 432 students in actual attendance. A few of these are day students, boarding with relatives on the College grounds. Every room in the dormitory is full, and several are crowded. Had we been able to accommodate all applicants, Clemson would now have 600 students in her class rooms.

We are receiving many applications from parents who desire to enter their sons at the opening of the next session in September 1900. We rejoice in this hearty manifestation of the confidence of the people. It evidences a widespread demand for industrial education, and proves that Clemson College is measuring up to the needs of the times.

We have been asked to explain how Clemson took care of 500 students at one time in 1894, while at present we have room for 419 only. It is true that we cannot accommodate as many students now as formerly, because it was found necessary to remove twelve rooms from the barracks to provide light and ventilation for the hallways, and besides, in 1894, four students were placed in a room, and at present not more than three are permitted to room together. In 1894 the Board of Visitors recommended to the Board of Trustees that two students should be the maximum number in one room.

THE PREPARATORY CLASSES.

The increase in the College classes this year has been at the expense of the preparatory department. For the first time in the history of the College, there are more students in the Senior class than in the Sub-freshman "A" class. The Senior class numbers 28 students, and the Sub-freshman "A" 24. This seems to indicate that the College will ultimately outgrow the necessity of having elementary classes.

Our Sub-freshman "B" class numbers 70 students, but the course of study in this class includes agriculture, drawing and nature-study, and the work is, therefore, of a distinctive nature for students preparing for a technical education. The Sub-freshman "A" class of 24 members is the only one in College doing the ordinary high school or academic work. Nearly all the State and denominational colleges in South Carolina have found it necessary to provide in some way for preparatory instruction. This is not the experience of South Carolina alone. The following extract from the annual report of the Pennsylvania State College shows that even in the wealthy State of Pennsylvania the same condition exists:

"If the State of Pennsylvania had the requisite number of high schools, and each had an ideal course of study and the proper kind of instruction, the preparatory class would be unnecessary. The ideal condition, however, does not exist. There are many communities without an efficient high school. In every community there are young men with bright minds eager for higher education. They are not prepared for college work. The preparation cannot be obtained at home, and the question comes to them: 'Where can it be obtained?' It is both natural and advisable that young men who find their home schools inadequate should finish their preparation in the preparatory department of their chosen college."

The abolishment of all preparatory privileges would place the country boys at a disadvantage, for the reason that there are not so many high schools in the country as in the towns.

WHY A LARGE FACULTY IS NECESSARY.

The increase in the number of students has entailed unusually heavy duties upon the Faculty. Our corps of instructors and the experiment station staff are working an average of twenty-eight and a half hours a week, at an average salary of $1,208 per annum. This average of twenty-eight and a half hours per week does not include the numerous duties outside of the class-rooms.

Those whose knowledge of college affairs is confined to the management of purely literary and classical institutions, and who are not familiar with the internal workings of a technical college, wonder why such large faculties are maintained in the agricultural and mechanical colleges of the United States.

The reason is that agriculture and mechanics cannot be taught by lectures alone. Technical education is a failure unless followed by practical work to illustrate and clinch the theoretical instruction of the class-room. In practical instruction, where the personal supervision of the teacher is necessary, the class sections must be small. In many branches of agriculture and mechanics the instructor cannot successfully handle more than eighteen students at a time. Our present Freshman class numbers 137 men and the Sophomore 108. A simple calculation will show the great amount of work required to handle these large classes, when divided into sections of eighteen students each.

CHANGES IN FACULTY.

During the past year we have lost by death and resignation four instructors.

J. G. Clinkscales, Professor of Mathematics, and A. P. Anderson, Professor of Botany, resigned after years of very satisfactory service to accept similar positions in other colleges. Their chairs have been filled by the promotion of Prof. P. T. Brodie and the election of Prof. P. H. Rolfs. Prof. C. B. Waller was elected to succeed Prof. P. T. Brodie.

On April 14, 1899, Prof. R. T. V. Bowman, Instructor in the forge and foundry, a singularly lovable young man, and a most efficient teacher, died at his home in Charlottesville, Va. His place was filled by the election of Prof. Wills Johnson.

On August 25, 1899, Prof. J. F. C. DuPre, Professor of Horticulture, one of nature's noblemen, a man loved and honored wherever known, died at the advanced age of 68 years. His place has been temporarily filled by the appointment of Prof. C. C. Newman, the Assistant Horticulturist.

The Faculty has been increased by the addition of two instructors. Prof. J. G. Simpson has been placed in charge of the machine shop. He is a graduate of Clemson of the class of 1896.

Prof. F. D. Frissell has been elected Professor of Designing and Weaving of the Textile Department.

COMMENCEMENT EXERCISES.

The third annual commencement was held in the College chapel on June 13, 1899, in the presence of a large concourse of people. The degree of Bachelor of Science was conferred upon the following graduates:

NAME.	COUNTY.
Calhoun, J. S	Barnwell.
Chreitzberg, C. K	Charleston.
Elder, M. L	York.
Hook, W. N	Orangeburg.
Jeffares, J. W	Fairfield.
Lewis, J. E	Oconee
McLendon, R	Darlington.
Mathis, A. J	Barnwell.
Seigler, C. H	Aiken.
Shealy, A. S	Edgefield.

NAME.	COUNTY.
Smith, H. G	Oconee.
Stribling, J. H	Pickens.
Taylor, I. B	Greenwood.
Thompson, J. C	Washington, D. C.
Turner, T. H	Barnwell.
Turnipseed, L. A	Richland.
Walker, W. F	Barnwell.

DIVISIONS INTO DEPARTMENTS.

The College is divided into three departments—Agricultural, Mechanical, Textile. Each department is subdivided into divisions, presided over by the instructors in charge. The head of the department has the immediate oversight of all the divisions in his department. Each department offers a four years course of study leading to the degree of Bachelor of Science.

AGRICULTURAL DEPARTMENT.

The misunderstanding that exists in the minds of some in regard to the work of our Agricultural Department is surprising. The idea obtains in some places that an agricultural course comprises a series of lectures on the practical side of farm life, with some field experiments to illustrate the lectures, and nothing more. As a matter of fact, the agricultural course is broad and comprehensive. The curriculum of the agricultural course is organized around the farm, and toward the farm all the studies of that course converge. The attempt is made to bring labor and learning into partnership—to make a scholar as well as a farmer.

Our Agricultural Department has instructors and equipments for teaching General Agriculture, Animal Husbandry, Horticulture, Entomology, Botany, Dairying, Veterinary Science, and Poultry Raising. The agricultural student is required to take all these subjects, besides the usual work in English, History, Mathematics and Chemistry. The following schedule shows the total number of hours given to each subject in a course of four years:

Mathematics	380
English	456
History	266
General Agriculture	342
Chemistry	868

"Agriculture is the oldest of the arts and the newest of the sciences." Agriculture is the practical application of many sciences. It has been the constant endeavor of our Agricultural Department to mark out a course of work that will be of the greatest good to the farmers of South Carolina.

Nearly 1,800 young men have been to Clemson for training. Most of these came to stay but a short time to get instruction along special lines. Inquiry shows that the great majority of these young men are now farming, and they are no doubt doing better work for having been to Clemson.

This department is in urgent need of further equipment.

THE MECHANICAL DEPARTMENT.

The work of this department is being held up to its usual high standard. The object of the mechanical course is to produce a man who will be: 1. A thorough mechanic; 2. An expert mathematician and scientist; 3. A good business man; 4. A man of culture. The marvellous industrial awakening throughout the State has opened up an unlimited number of business opportunities for men with mechanical training. Within six weeks after commencement last summer every graduate had a profitable position.

The establishing last year of a laboratory course in connection with physics has proved of much benefit to the engineering courses. From time to time the students build in the shops some important type of machines or engineering apparatus in order to apply technical and scientific training to practice. The six-horse power vertical engine that attracted so much attention at the State Fair was built in this way—the engine having been designed and built entirely by the

students. The students are now at work on a transmission dynamometer for use in the mechanical laboratory. Scientific apparatus of this kind is rarely attempted outside of shops making such work a specialty, and we feel proud of the achievement.

I ask your careful consideration of the crowded and congested condition of the Mechanical Department this year. The equipments are not sufficient to take care of the students that are now here. The Junior class next year will be more than twice as large as ever before, and it will be impracticable to give these young men instruction unless the laboratories are materially increased.

TEXTILE DEPARTMENT.

The development of this department has been most gratifying, for, indeed, it has surpassed our most sanguine expectations. Last January only one piece of machinery had been installed, and now there are more than thirty machines in daily use by the students.

The building is well protected by a complete installation of automatic fire sprinklers, including a 10,000 gallon steel tank and a system of humidification—the latter being for the more successful manipulation of the cotton fibres, and also for the health of the students. The installation of these plants was effected almost entirely by student labor. The present value of the textile building and equipment is $30,000, at a cost to the State of $18,000, as most of the machinery was contributed by the makers.

The original plans of the building contemplated an extension, and the need of additional floor space is becoming more apparent every day. We haven't room now for the complete installation of the dyeing plant, which we have already on hand. Besides the dyeing apparatus, other necessary machinery has been arranged for, and when it comes it will be necessary to store it away until the present building is enlarged.

The textile course has proved surpassingly popular. The problem now is not to get students for this department, but to choose the best men, and not to exceed the teaching capacity of the instructors.

The object of the Textile Department is not to make mere operatives. It is not too much to say that the graduates of this department will have such a clear idea of the principles underlying the processes of manufacture, and will be so trained in the practical operations of the machines required as to aid materially in the bringing about of a diversity of manufacture, which is so much needed in the southern mills.

CHEMICAL DEPARTMENT.

The Chemical Department continues to put into practice the thorough and satisfactory methods which have characterized its management from the beginning.

This department has always been modest in its requests, and, therefore, the following statement from Prof. M. B. Hardin deserves your earnest consideration:

"I have especially to call your attention to the crowded condition of the lecture room and laboratory. The lecture room will not seat comfortably more than ninety students. We have had this year 108 Sophomores in the room at one time, and badly accommodated them by stopping up the aisles with chairs. The laboratory is furnished with only 100 available lockers, and as the Sophomore and Junior agricultural classes together number 130 students, it has this year been necessary to assign in some cases two students to a locker, so that each cadet might have a place for his apparatus. If the classes next year are any larger, I do not see how we can accommodate them with our present facilities, and if there should be a permanent increase in the number of students, it will become necessary to enlarge the laboratory or build a new one. It will require about $10,000 to build the necessary addition to our present building, and about double that amount to construct an entirely new laboratory."

The chair of Geology and Mineralogy is a division of the Department of Chemistry. It seems very desirable that the Professor in charge, Prof. J. V. Lewis, should have an opportunity to study the geologic structure of the coastal region. If we could find out when new wells are being bored, and get specimens of the cores of such borings, the examination of them by Prof. Lewis, in connection with the water analyses of the Chemical Department, would be one step in the direction of rendering a most important service to the people of the low country, in determining the position of water-bearing horizons, and thus enabling us to say whether good water could reasonably be expected.

MILITARY DEPARTMENT.

The Federal law requires military exercises at the Colleges receiving the benefit of the Morrill Fund. The corps is divided into two battalions of three companies each. The deportment of the cadets is excellent.

In the mess hall well cooked, substantial food is furnished at cost—

six dollars and a half a month. The steam laundry is self-sustaining—the charge to the students being one dollar a month.

Since the detail of Capt. Ezra B. Fuller to go to Cuba, the arduous duties of the Commandant's office have been admirably discharged by Major G. Shanklin.

LITERARY DEPARTMENT.

This department comprises the usual courses in English, History, and Mathematics. The Professors in charge of these branches have been faithful and conscientious in the discharge of their duties, and the classes have made satisfactory progress.

As the work of the Literary Department is mainly theoretical, very little, if any, equipment will be asked for.

If all the instruction in Clemson was of a literary character, the cost of maintaining the institution could very properly be compared with the cost of the purely literary or classical Colleges. The only fair comparison, however, is to compare it with the cost of similar Colleges. When this is done, it will be found that the average cost to the government of maintaining a student at Clemson is twenty dollars less than the average for all the other Agricultural and Mechanical Colleges in the United States.

SUMMARY OF OUR NEEDS.

The need of a new dormitory is obvious. Our first duty, however, should be to provide for the students that are now here. Our urgent needs are the needs that belong to healthy growth. Enlarged accommodations are absolutely necessary to do efficient work with the College classes next session. We are face to face with a serious problem, and the issue must be met at once. Abolishing the Sub-Freshman class would not help matters in the least. This class is taught almost entirely by the Professors in the Literary Department, and the Literary Department is not crowded. The congestions exist in the Chemical, Mechanical and Textile Departments. These departments must be enlarged, or next year's classes cannot be handled. The Agricultural Department, too, is in need of a considerable amount of essential equipment.

In obedience to the instructions of the Trustees, expenditures for the past year have been confined to actual current necessities. Very little money has been spent for keeping the buildings in repair, and very little has been spent for equipment. Expenditures have been

confined to presing necessities, even to the detriment of the College, at times. As a result of this policy, the Treasurer has a balance on hand of $10,000.

This surplus, added to our regular income for the next year, if handled wisely and economically, will be sufficient to make some of the enlargements of laboratories demanded by the increase in classes, and it will not be necessary to ask the Legislature for a special appropriation. I, therefore, recommend that instead of attempting just now to build a new dormitory for prospective students, that we utilize our available resources in providing for the students already in attendance.

Dr. A. Toomer Porter, an eminent educator, visited Clemson this year, and in a published interview said: "It is simply amazing what has been gotten together there in so short a time, and the facilities for doing the work that they have set out to do. Doubtless they have received a good deal of money, but it has been well spent, and I think can show to the State a good result for all they have received."

NEED OF AN INDUSTRIAL MUSEUM.

I assume that the desirability of a good museum at Clemson College will be conceded. Every well-established College regards the museum as a valuable adjunct to the college equipment.

Clemson College has for its constant aim the development of the agricultural and mechanical interests of South Carolina. The students should have an opportunity to examine in an industrial museum specimens of our various native products. For instance, the College has installed a costly testing machine for making transverse, compression, and tension tests of the various building woods. We should have a complete collection of all the timbers of our State, so that the students in wood-working may learn something of the wonderful possibilities for wood-working establishments in South Carolina.

There should be a collection of the soils, ores, minerals, plants and manufactured products of the State. The Clemson student is receiving an education that will fit him especially to develop our natural resources. Will it not prove helpful and inspiring for him to have impressed upon his mind the many opportunities in his own State for the practical application of his knowledge?

There is real need in South Carolina for an industrial museum. The public is looking to Clemson as a bureau of information. This is evidenced by the large number of inquiries that come to us from

all parts of the Union, seeking information on the natural resources of South Carolina. The establishment of an industrial museum would be the beginning of an effort to collect reliable statistics of our resources. The basal idea of a museum should be instruction. While curios, souvenirs and relics should not constitute the main attraction of a museum, they do possess value and interest.

From time to time friends of the College send us interesting relics, and these are now on exhibition in the library. Gifts of this kind will multiply rapidly when it becomes known that arrangements for permanent preservation have been made.

ROAD IMPROVEMENT.

Realizing the fact that road improvement is one of the greatest economical problems of the day, Clemson College has devoted time and money to the study of this problem for the benefit of the people of South Carolina.

Calhoun, our nearest railway station, is one mile from the College, and is separated from it by a deep ravine, through which runs a large branch. The point where the public road crossed this branch was 75 feet lower than the surface near the College. The grades on the hillside were very irregular, and in some cases were as much as ten feet in a hundred. The soil is stiff clay, which during wet weather becomes softened into deep mud, rendering the road almost impassable. The hauling of coal and other heavy freight over this road has been a source of heavy expense to the College.

After careful surveys, it was decided to 1. Substitute a stone culvert for the bridge; 2. To reduce the grades to a maximum of 4 per cent. between the branch and the College, and 4.4 per cent. between the branch and the depot; 3. To macadamize the surface to the depth of nine inches and a width of nine feet.

Two objects have been kept in view: 1. To build a good road that will reduce our freight hauling; 2. To make experiments that will be of general benefit to the people of the State.

Specific tests will be made on the following constructions:

1. Gneiss on telford foundation.
2. Quartz on telford foundation.
3. Gneiss on macadam foundation.
4. Quartz on macadam foundation.
5. Gravel on macadam foundation.
6. Coating of sand on clay foundation.

There will also be short sections of vitirified brick, steel trackways, salt foundations, oiled surfaces, etc.

The engineering work for the road was done by Prof. P. T. Brodie, and the work has been supervised by Major J. E. Bradley, acting for the Trustees. The Department of Road Inquiry at Washington has rendered valuable and highly appreciated assistance. Mr. Chas. T. Harrison, an expert from Washington, is now with us, and will carry the work to completion. He will also give the College classes a series of lectures on road making.

It is an interesting historical coincidence that John C. Calhoun was one of the pioneers in the United States in the good roads movement, and now the United States Government has come to his old homestead to make important road experiments.

Prof. C. M. Conner, of the Agricultural Department, has made some valuable experiments with broad tires, and the result has been published in bulletin form.

ATHLETICS AT THE COLLEGE.

Manly sports are encouraged at the College so long as they do not interfere with studies and other duties. The most popular game at present is football. During the past season the team has not been absent from a lesson, as they were allowed to go off only on Saturdays to play. The team has not gone into debt. Not a player has been seriously injured. Such exercises promote temperance, and help to build up an esprit de corps, so long as they are kept in moderate limits and gentlemanly bounds.

THE EXPERIMENT STATION.

The annual report of the Experiment Station is made to the Governor of the State on or before February 1st, as required by the Act of Congress. It has been our custom, though not required by law, to send the financial statement to the Legislature with the annual report of the College. This has created in the minds of some an impression that the Hatch Fund of $15,000 is used in part for the support of the College, and some in estimating the annual income of the College add this amount to the other source of income.

The first section of the Hatch Act requires stations to be under the direction of the agricultural colleges. In all the States except Georgia and Ohio, the stations are located on or near the college grounds.

In the States of Alabama, Connecticut, New Jersey and New York, more than one station is maintained by the aid of funds from the State.

There are some advantages in having the colleges and the stations working together. Specialists are employed who divide their time between teaching college classes and working in the station. Thus money is saved. The station workers have access to the college laboratories. The agricultural students have a chance to study the experiments in progress.

Each State receives $15,000 annually for the experiment station. The expenditures are regulated by the college trustees, but an auditor from Washington examines the accounts once a year to see that the money is expended in conformity with the Act of Congress. Every item is rigidly scrutinized, and the funds cannot be diverted to other purposes than the legitimate station work. I dwell upon this, because some who are not acquainted with the law think that the Hatch Fund is used in part in South Carolina to support Clemson College. The law will not permit us to apply any of this fund to college purposes.

The last clause of the Act "having due regard to the varying conditions and needs of the respective States and Territories," is worthy of special notice. The South Carolina station is intended primarily to help the farmers of South Carolina. In some of the Western States the irrigation engineer is one of the most important officers of the station staff. Our station has no specialist for irrigation, because local conditions do not demand one. There are now in the United States fifty-one stations that receive Federal funds. These stations employ 557 workers. Although these stations have been in operation but twelve years, many substantial results have been accomplished. The main work thus far has been the collection and publication of important scientific data. Scientific development is necessarily slow. Its foundation rests upon an accurate record of facts. From the immense accumulation of facts made by station workers during the past decade, we may reasonably expect the discovery of principles of incalculable value in the near future. The time element should not be forgotten. There are single experiments that cannot be completed in the short space of twelve years. At Rothamsted, England, one wheat experiment has been running fifty years. This statement is not made by way of apology for the past work of the experiment stations, for they have already discovered many new things of great economic value, and the work is but in its infancy.

NEED OF A SUB-STATION IN SOUTH CAROLINA.

We have been asked at various times to establish a sub-experiment station in lower Carolina, for the benefit of the people of that section. Doubtless a sub-station in the low country, working under the Clemson station, would be helpful in many ways. But under the ruling of the Secretary of Agriculture of the United States, by and with the advice of the Attorney General, none of the Hatch Fund can be used for this purpose.

Should the Legislature desire a sub-station, a special appropriation will be necessary. It is estimated that $4,000 will be enough for its establishment, and $2,000 for its annual maintenance.

IN CONCLUSION.

In conclusion, I desire to express my thanks for the hearty support of the Trustees, and for the loyal fidelity of the members of the Faculty.

My acknowledgments are especially due Col. M. B. Hardin, who, during my sickness last summer, attended so faithfully to the duties of the President's office.

Respectfully submitted,

HENRY S. HARTZOG,
President.

Annual Report Department of Chemistry.

CLEMSON COLLEGE, S. C., December 1, 1899.

President H. S. Hartzog, Director of the South Carolina Experiment Station.

Sir: I respectfully submit the following report of the Chemical Department of the Station for the year ending November 30th, 1899. The second part of the report gives an account of the State analytical work.

I.

The investigation of the composition of the *sea island cotton plant* has been completed by Mr. Shiver, and the results have been published in Bulletin 47.

The *rotation experiment* referred to in my last annual report is still in progress.

The work on the *sweet potato* is being continued. The object of this work was, primarily, to determine the rate of the change of starch into sugar during storage, and the work was undertaken to supplement Bulletin 28 on the "sweet potato as a starch producer."

In connection with this investigation, determinations are being made of the percentage of starch in samples of sweet potatoes from the variety and fertilizer tests of the Agriculturist.

With the co-operation of the Agriculturist, experiments have been begun and will be continued next year with the view of ascertaining if *any injurious effects* are produced on the cotton plant by the use of acid phosphates carrying small quantities of *free sulphuric acid,* or containing *spent pyrites as a filler.*

An investigation of the chemical composition of the *rice plant,* and of the product and by-products of the rice industry, has been commenced, the work being carried on by Mr. C. C. McDonnell, Assistant Chemist.

For the specimens so far obtained, we are indebted to Mr. Samuel G. Stoney, of Charleston, through the courtesy of Col. J. B. E. Sloan, of the same city.

MISCELLANEOUS AND ROUTINE WORK.

24 Samples of sorghum, sugar in juice.
1 Sample of Virginia peanuts.
1 Sample of Spanish peanuts.
4 Samples of lard, melting points.
2 Samples of fertilizers.
1 Sample of cotton hull ashes.

All of these analyses were made for the Agricultural Department of the station, except the last, which was made for Mr. C. F. Zeigler, of St. Matthews, S. C.

FARMERS' INSTITUTES.

In accordance with directions from the President's office, the writer attended, during the College vacation, Farmers' Institutes at the Isle of Palms, Beulah, Summerton, Darlington, Orangeburg and Bennettsville, as well as the Annual Institute at the College. Mr. Shiver went to Woodville, and both he and Dr. Brackett made addresses at the College Institute.

The chemical work referred to above was carried on as usual by Mr. Shiver, until September 8th, when he was prostrated by illness. Mr. C. C. McDonnell was then assigned to the work, and has faithfully and efficiently discharged the duties of the position.

II.

STATE ANALYTICAL WORK.

Following is a report of the work on commercial fertilizers, drinking water, ores, minerals, &c. This work is done at the station under the direction of the Board of Fertilizer Control.

(1.) *Summary of the work this year compared with that of last year.*

	1898.	1899.
Official fertilizer samples	314	336
Farmers' fertilizer samples	46	56
Waters	70	92
Phosphate rocks	2	
Ores and minerals	22	33
Marls	2	1
Clays and sand	1	5
Miscellaneous	1	3
	458	526

(2.) *Official Samples of Fertilizers.*

The number of samples analyzed this year is 336. The analyses are given in full in Bulletins 43 and 45 of this station. The general results compared with those of last year, are as follows:

CLASSIFICATION.

	1898.	1899.
Complete fertilizers	141	134
Acid phosphates	63	73
Acid phosphates with potash	50	68
Kainits	20	14
Cotton seed meals	39	40
Nitrate of soda	1	2
Sulphate of potash		1
Muriate of potash		2
Sylvinite		1
Nitrate of soda, with potash salts		1
	314	336

Of the 336 samples analyzed this year, only 6 were deficient under the law, which requires that the commercial value based upon analysis shall not fall 3 per cent. below the commercial value based upon guarantee. Besides these 6 deficients, however, there were 56 samples, including 1 cotton seed meal, which fell below guarantee in one or more constituents, as shown in the following table:

	Below Guarantee—Per Cent.				
	.0 to .1	.1 to .25	.25 to .5	.5 to .1	.1 and Over.
Ammonia.....(19)	8	7	2	2	
Avail. Phos. Acid.....(11)	5	3	2	1	
Potash.....(26)	9	7	5	3	2
Total.....(56)	22	17	9	6	2

In all these samples, the deficiencies were made up for in money value by an excess of one or both of the other constituents. While in most cases the deficiencies were slight, yet in some instances they were distinctly appreciable, and it is very evident that in purchasing such fertilizers the farmer is not getting what he wants or what he pays for.

AVERAGES OF ANALYSIS.

ACID PHOSPHATES.	1898. Per Cent.		1899. Per Cent.	
	Found.	Guaranteed.	Found.	Guaranteed.
Soluble phosphoric acid	10.51	.....	10.54	.....
Reverted phosphoric acid	3.16	.....	3.20	.....
Availab'e phosphoric acid	13.67	12.27	13.74	12.68
Insoluble phosphoric acid	1.47	.....	1.50	.....
Total	15.14	.....	15.24	.....
ACID PHOSPHATES WITH POTASH.				
Soluble phosphoric acid	8.06	.....	8.25	.....
Reverted phosphoric acid	3.48	.....	3.52	.....
Available phosphoric acid	11.54	9.97	11.77	10.77
Insoluble phosphoric acid	1.25	.....	1.36	.....
Total	12.79	.....	13.13	.....
Potash soluble in water	2.06	1.78	1.99	1.75
COMPLETE FERTILIZERS.				
Soluble phosphoric acid	6.68	.....	6.68	.....
Reverted phosphoric acid	2.47	.....	2.64	.....
Available phosphoric acid	9.15	8.01	9.32	8.06
Insoluble phosphoric acid	2.08	.....	1.81	.....
Total	11.23	.....	11.13	.....
Ammonia	2.70	2.47	2.73	2.55
Potash soluble in water	1.93	1.57	2.21	1.91
COTTON SEED MEAL.				
Available phosphoric acid	2.37	1.61	2.76	1.72
Ammonia	8.39	7.49	8.25	7.54
Potash soluble in water	1.58	1.00	1.75	1.06
KAINIT.				
Potash soluble in water	12.68	11.79	12.78	11.93

The available phosphoric acid and potash in the cotton seed meals this year were guaranteed only in eight samples, but these ingredients were determined in all cases and the percentages found were used along with the percentage of nitrogen in fixing the commercial value of the meals. For some reason, the meals have for the last two years averaged a little lower in nitrogen than they did in 1896 and 1897.

It will be seen from the foregoing table that in all classes of goods collected by the Inspector, the average percentages of the essential ingredients found upon analysis are considerably higher than the average guarantees. It may be interesting to note the classification of the complete fertiliers and acid phosphates this season, with refer-

ence to the grading required now by law. In the following table the number of samples of each grade, as claimed by guarantee, is placed side by side with the number found by analysis to belong to that grade:

	High.		Standard.		Low.	
	Claimed.	Found.	Claimed.	Found.	Claimed.	Found.
Complete fertilizers.....(134)	28	52	83	76	23	6
Acid phosphates.....(73)	51	62	19	7	3	4
Acid phosphates with potash (68)	19	60	39	8	10	
Total.....(275)	98	174	141	91	36	10

These results are due to the following changes of grade determined by analysis:

Change.	Low to Standard.	Standard to High.	Low to High.	High to Standard.	Standard to Low.	High to Low.	No Change.
Complete fertilizers.....(134)	18	24	1	1	2	.....	88
Acid phosphates.....(73)	.....	14	.....	3	1	.....	55
Acid phosphates and potash.....(68)	4	35	6	.....	.....	.....	23
Total.....(275)	22	73	7	4	3	.....	166

It appears, therefore, that out of the 275 samples, 166 were found to be of the grade claimed for them, while 102 proved to be of a higher grade, and only 7 of a lower grade than was claimed for them.

(3.) *Farmers' Samples of Fertilizers.*

The number of samples analyzed for farmers since December 1, 1898, is 56. Farmers who wish to have such analysis made should apply to the Secretary of the Fertilizer Department at this College for a copy of the rules concerning such work. Unless these rules are complied with, the analysis cannot be made.

(4.) *Water.*

The number of analyses made this year is 92. Of the samples analyzed, 21 were from deep wells, of which 13 were *true* artesian or flowing wells. The information received this year is in keeping with that of previous years, which indicates that wherever these deep and artesian waters have been introduced and used as ordinary drinking water, instead of the water from the shallow and surface wells of the

low country, malarial diseases have either disappeared or become much less prevalent.

(5.) *Ores, Minerals and Other Substances.*

The number of assays and analyses under this head is 42. The results of the examination are not of sufficient general interest to be reported in detail.

(6.) *Distribution of the Work.*

Messrs. C. C. McDonnell and B. F. Robertson have been engaged in the analysis of fertilizers and waters. Mr. Robertson has done most of the work of this division since September 8th, when, on account of the illness of Mr. Shiver, Mr. McDonnell was assigned to the work formerly done by that assistant. Dr. Brackett has, as usual, done a considerable amount of work on waters, ores and minerals, though not as much as last year, on account of the demands upon him for the laboratory instruction of a greatly increased number of students. Mr. D. H. Henry, a distinguished graduate and post-graduate student of this College, who was appointed by you to fill the temporary vacancy occasioned by Mr. Shiver's absence, entered upon his duties on the 1st of November.

It gives me great pleasure to refer to the efficient manner in which all of these gentlemen have carried on the work of the department.

Very respectfully,

M. B. HARDIN,
Chief Chemist.

3—CC (350)

Annual Report Fertilizer Department.

Hon. J. E. Tindal, Chairman Board of Fertilizer Control.

Sir: I respectfully submit the following report of the work of this department for the year ending December 31, 1899:

The work of sampling and inspection of fertilizers has been carried on in the usual way, four inspectors being employed during the shipping season. Owing to the fact that the great bulk of commercial fertilizers sold in the State is shipped and delivered in a very short time, it is somewhat difficult to make the inspection as thorough as is desirable, but through the energy and industry of our inspectors, there were comparatively few brands of goods sold in the State last season that were not sampled and inspected.

It is gratifying to report that the inspection tax is almost universally paid and the tags attached, as required by the law of the State. Only one serious case of failure to pay the inspection tax came to our notice during the year. This was a shipment of several cars of nitrate of soda into the State, on which the inspection tax had not been paid, nor had the requirements in regard to branding been complied with. Suit was brought against the shipper, and also against the railroad, in the Circuit Court. The cases were heard in November last, and were decided in favor of the State.

I would call attention to the fact that, under the law, all manufacturers are required to send to this department, every season, samples of all fertilizers which they propose to sell in the State. These samples are never analyzed, as we collect all samples for analysis from goods found on the market, and it is therefore a useless expense to the manufacturers, and results in no good to this department. I would, therefore, suggest that this requirement of the law be stricken out.

The Act of the last Legislature to further regulate the manufacture and sale of commercial fertilizers in this State has been put into operation, and it has necessitated some changes in the work of the department here. The law, as construed by the Board of Fertilizer Control, requires that the inspection tags must be issued direct from Clemson College, and must be stamped or punched or marked before they are issued. This made it necessary to fit up a cancelling or

punching machine here, and to employ the necessary labor to have the work done. This has all been done, and the new system is now in successful operation.

The number of official samples of fertilizers analyzed this year is 336. The analyses were reported in full in Bulletins 43 and 45 of the South Carolina Experiment Station. A full comparison of the results of these analyses with those of last year is given in the report of Col. M. B. Hardin, Chief Chemist.

I give below a tabulated statement of the work of this year, and, for comparison, the corresponding figures of last year:

	1899.	1898.
Amount of inspection tax collected to November 1	$60,324 75	$64,348 33
Amount of fertilizers sold in the State, tons	241,299	257,393
Number of samples collected	560	550
Number of samples analyzed	336	314
Number of samples below guarantee in commercial value	12	35
Number of samples deficient	6	6
Number of farmers' samples analyzed	56	46

The following statement shows the expenses of this department for the past year:

Salaries of Chemists and Secretary	$3,812 08
Chemical supplies	446 69
Printing tax tags, blanks, &c	1,088 23
Postage and stationery	57 42
Freight and express	132 19
Traveling expenses	178 03
Janitor and miscellaneous labor	276 41
Inspectors' salaries	987 07
Construction and equipment of tag room	132 36
Furniture	30 00
Inspection tags	399 13
Unclassified small bills	14 69
Total	$7,554 30

The use of offices, heat, light, water and power have been fur-

nished this department by the College, for which no charge has been made.

Respectfully submitted,

J. P. SMITH,
Secretary Fertilizer Department.

South Carolina Experiment Station in Account with the United States Appropriation, 1898-99.

Dr.

To receipts from the Treasurer of the United States as per appropriation for fiscal year ending June 30, 1899, as per Act of Congress approved March 2, 1887 . . . . . $15,000 00

Cr. Abstract.

By Salaries	1	$6,890 30
Labor	2	2,614 60
Publications	3	909 42
Postage and stationery	4	311 50
Freight and express	5	152 49
Heat, light and water	6	45 23
Chemical supplies	7	528 72
Seeds, plants, and sundry supplies	8	662 97
Fertilizers	9	371 60
Library	11	219 38
Tools, implements, and machinery	12	676 64
Furniture and fixtures	13	4 00
Scientific apparatus	14	32 07
Live stock	15	84 96
Traveling expenses	16	792 47
Contingent expenses	17	61 76
Building and repairs	18	641 89
Total		$15,000 00

We, the undersigned, duly appointed Auditors of the Corporation, do hereby certify that we have examined the books and accounts of the South Carolina Experiment Station for the fiscal year ending June 30, 1899; that we have found the same well kept and classified

as above, and that the receipts for the year from the Treasurer of the United States are shown to have been $15,000, and the corresponding disbursements $15,000, for all of which proper vouchers are on file and have been by us examined and found correct, thus leaving no balance.

And we further certify that the expenditures have been solely for the purposes set forth in the Act of Congress approved March 2, 1887.

Signed

R. W. SIMPSON,
M. L. DONALDSON,
J. E. BRADLEY,
Auditors.

Attest:

P. H. E. SLOAN,
Secretary and Treasurer.

MORRILL FUND.

Report of P. H. E. Sloan, Secretary and Treasurer Clemson Agricultural College, S. C., to the Secretary of Agriculture and the Secretary of the Interior, of amount received under Act of Congress August 30, 1890, in aid of Colleges of Agriculture and the Mechanics Arts, and of the disbursements thereof, to and including June 30, 1899.

Balance on hand July 1, 1898	80
Date of receipt of instalment for 1898-99, amount	$12,000 00
Total available for year ended June 30, 1899	$12,000 80

Disbursements thereof for and during the year ended June 30, 1899:

Agriculture, as per Schedule A	$2,033 29
Mechanics Arts, as per Schedule B	3,927 07
English Language, as per Schedule C	1,200 00
Mathematical Science, as per Schedule D	1,800 00
Natural Science, as per Schedule E	2,266 62
Economic Science, as per Schedule F	750 00
Total expended during year	$11,976 98
Balance unexpended July 1, 1899	23 82

I hereby certify that the above account is correct and true; and, together with the Schedules hereunto attached, truly represents the

details of expenditures for the period and by the institution named, and that said expenditures were applied only to instruction in agriculture, the mechanics arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their application in the industries of life and to the facilities for such instruction.

P. H. E. SLOAN,
Treasurer.

P. H. E. Sloan, Secretary and Treasurer, in Account with the Clemson Agricultural College, for the Year Ending December 31, 1899.

RECEIPTS.

Balance on hand, as per last Annual Report		$7,570 58
Interest on Clemson Bequest		3,512 36
Land Scrip Fund		5,754 00
Freight and Express refunded		179 17
Tuition Fees		2,470 00
Sales Dairy Products		2,583 32
*Sales Farm Products		1,059 29
Rents		210 00
Electric Plant		340 33
Cash from Printery		47 34
Cash from Incidentals		248 49
Privilege Tax on Fertilizers	$59,192 50	
Less Expenses of Fertilizer Department	7,554 30	51,638 20
Total		$75,613 08

*In addition to cash sales, there is produce on hand worth $3,826.35.

Paid on Account Miscellaneous Department:

Library Division	$821 46
Office Division	619 34
Travel Division	1,242 09
Institutes Division	218 40
Construction and Repair Division	1,639 13
Miscellaneous Labor Division	1,056 68
Heat Division	244 57
Water Division	1,029 84

Salary Division		$24,692 98	
Mathematics Division		25 84	
English Division		46	
Road Division		1,880 03	
Chapel Division		425 10	
Textile Division		6,150 17	
Cat. and Adv't Division		577 82	
Unclassified Division		301 47	
Sub-freshman Division		37 25	
Power and Light Division		6,077 22	
Campus Division		55 15	
Furniture Division		85 25	
Equipment Division		832 22	
Equipment		863 48	
Insurance Division		3,462 01	
State Fair Division		456 10	$52,794 06
Account Chemical Department:			
Apparatus and Supplies Division		448 21	
Postage and Stationery Division		4 50	
Labor Division		4 33	
Construction and Repair Division		16 10	
Freight Division		7 82	
Books Division		20 40	
Geology Division		8 53	
Furniture Division		1 35	
Unclassified Division		15	511 39
			$53,305 45

Paid on Account Agricultural Department:		
Dairy Division	$3,114 60	
Veterinary Department	235 89	
Farm Division	1,884 81	
Entomology Division	62 13	
Convicts Division	1,528 72	
Freight Division	1 97	
Tools Division	61 77	
Laor Division	39 20	
Unclassified Division	10 08	
Botany Division	98 68	
Construction and Repair Division	449 90	
Equipment Division	444 13	$7,931 88

Paid on Account Mechanical Department:		
Mechanical Laboratory Division....	$254 65	
Wood Shop Division..	470 55	
Drawing Division..	192 41	
Electric Division..	876 00	
Machine Shop Division..	483 61	
Forge and Foundry Division..	358 37	
Construction and Repair Division..	314 38	
Janitor's Division..	53 83	
Office Division..	172 12	
Unclassified Division..	45 56	
Physics Division..	136 41	$3,357 89
Paid on Account Military Department:		
Furniture Division..	$72 57	
Construction and Repair Division..	239 88	
Band Division..	5 04	
Postage and Stationery Division....	30 98	
Labor Division..	85 94	
Freight Division..	5 69	
Unclassified Division..	46 42	
Insurance Division..	53 35	
Equipment Division..	304 33	$844 20
Total Expenditures..		$65,439 42

RECAPITULATION.

Total net receipts..	$75,613 08

Disbursements.

On Account Miscellaneous Department...	$52,794 06	
On Account Chemical Department..	511 39	
On Account Agricultural Department.. ..	7,931 88	
On Account Mechanical Department.. ..	3,357 89	
On Account Military Department..	844 20	
Balance..	10,173 66	$75,613 08

Clemson College, S. C., December 28, 1899.

We, the undersigned, duly appointed Auditing Committee of the Clemson Agricultural College, do hereby certify that we have examined the books and accounts of the Treasurer of the College for the year 1899, and have found the same well kept and classified, and for all of which proper vouchers are on file and have been examined by us and found correct.

R. W. Simpson,
Wm. H. Mauldin.